



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/763,178

01/26/2004

Hideo Kidoh

36856.1209

6513

54066

7590

01/20/2006

MURATA MANUFACTURING COMPANY, LTD.  
C/O KEATING & BENNETT, LLP  
8180 GREENSBORO DRIVE  
SUITE 850  
MCLEAN, VA 22102

EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

8

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/763,178	KIDOH, HIDEO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>104</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "first coefficient of velocity-dispersion" which is noted as having a negative value, is not understood in the disclosure and hence the negative value of the "velocity dispersion" in the claims is not understood. Such a term "first coefficient of velocity-dispersion" has not been found in the prior art including worldwide databases. Please provide some information on this and show how the negative value is reached. Addition of such to the disclosure will not be regarded as new matter as long as it pertains to determination of such a value. Please provide a qualitative explanation also.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2834

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sato (US 4,340,834). Sato shows (fig. 1) a surface acoustic wave filter comprising: a piezoelectric substrate (11); an input-side IDT electrode (12) and an output-side IDT electrode (13) arranged on the piezoelectric substrate (11) so as to be separated from each other in the propagation direction of a surface acoustic wave. While it is not clearly stated that the input-side IDT electrode (12) and the output-side IDT electrode (13) having a thickness at which a velocity-dispersion of the filter has a negative value, this is regarded as a goal of the invention since no thickness is specifically claimed.

The piezoelectric substrate (11) is a crystal substrate.

The invention further includes a shield electrode (14) provided between the input-side IDT electrode (12) and the output-side IDT electrode (13).

Claims 1-3 and 7 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kadota et al. (US 6,946,930). Kadota et al. show (fig. 5A) a surface acoustic wave filter comprising: a piezoelectric substrate (2); an input-side IDT electrode (3a) and an output-side IDT electrode (3b) arranged on the piezoelectric substrate (2) so as to be separated from each other in the propagation direction of a surface acoustic wave. While it is not clearly stated that the

Art Unit: 2834

input-side IDT electrode (3a) and the output-side IDT electrode (3b) having a thickness at which a velocity-dispersion of the filter has a negative value, this is regarded as a goal of the invention since no thickness is specifically claimed.

The piezoelectric substrate (11) is a crystal substrate.

The input-side IDT electrode (3a) and the output-side IDT electrode (3b) each include an electrode layer made of Al or an Al alloy as a major electrode layer (see col. 5, lines 54-59), and the electrode film thickness ratio  $h/\Lambda$  is in the range of from about 0.035 to about 0.06 (see especially the ABSTRACT), wherein  $h$  represents the film-thickness of the input-side IDT electrode (3a) and the output-side IDT electrode (3b), and represents the wavelength of the surface acoustic wave.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakamura et al. (US 2002/0056035). Nakamura shows (fig. 10a) a surface acoustic wave filter comprising: a piezoelectric substrate; an input-side IDT electrode (1002) and an output-side IDT electrode (1003) arranged on the piezoelectric substrate so as to be separated from each other in the propagation direction of a surface acoustic wave. While it is not clearly stated that the input-side IDT electrode (1002) and the output-side IDT electrode (1003) having a thickness at which a velocity-dispersion of the filter has a negative value, this is regarded as a goal of the invention since no thickness is specifically claimed.

The input-side IDT electrode and the output-side IDT electrode is an SPUDT electrode. See discussion in paragraphs 6 and 7.

Art Unit: 2834

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadota et al. (US 6,946,930) in view of Yoneda et al. (US 6,271,617). Given the invention of Kadota et al. as noted above, they don't note use of at least one electrode layer laminated to the electrode layer made of Al or an Al alloy, the at least one electrode layer being made of a metal excluding Al.

Yoneda notes (col. 5, ll. 37-43) at least one electrode layer laminated to the electrode layer made of Al or an Al alloy, the at least one electrode layer being made of a metal excluding Al in his surface acoustic wave device although he doesn't note the electrode film thickness ratio.

It would have been obvious to one having ordinary skill in the art to employ at least one electrode layer laminated to the electrode layer made of Al or an Al alloy, at least one electrode layer being made of a metal excluding Al such as is shown by Yoneda et al., in the invention of Kadota et al. at the time of their invention in order to avoid the problems or overcome the problems cited in the Description of the Related Art in the Yoneda et al. document.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 4,340,834) in view of Oshio (US 2004/0164645). Given the invention of Sato as noted above he doesn't disclose Euler angles in his invention.

Oshio shows an ST-cut quartz crystal substrate having an Euler's angle  $(0, \Theta, 0)$ , and the angle  $\Theta$  is in the range represented by  $\Theta = (-3 (h/\Lambda) \times 100 + 100 + 134) \pm 1$ .

Oshio doesn't show input and output electrodes that are both IDTs.

Art Unit: 2834

It would have been obvious to one having ordinary skill in the art to employ the design of Sato with the Euler angles of Oshio since with such angles "it is possible to lower the loss accompanied with the propagation ... thereby improving the Q value", as Oshio notes in paragraph 17.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art reads on some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd  
tmd

January 11, 2006

  
TOM DOUGHERTY  
PRIMARY EXAMINER